

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 January 2005 (27.01.2005)

PCT

(10) International Publication Number
WO 2005/008286 A2

(51) International Patent Classification⁷: **G01T 1/24**

(21) International Application Number:
PCT/GB2004/002980

(22) International Filing Date: 9 July 2004 (09.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0316372.2 12 July 2003 (12.07.2003) GB
0403513.5 18 February 2004 (18.02.2004) GB

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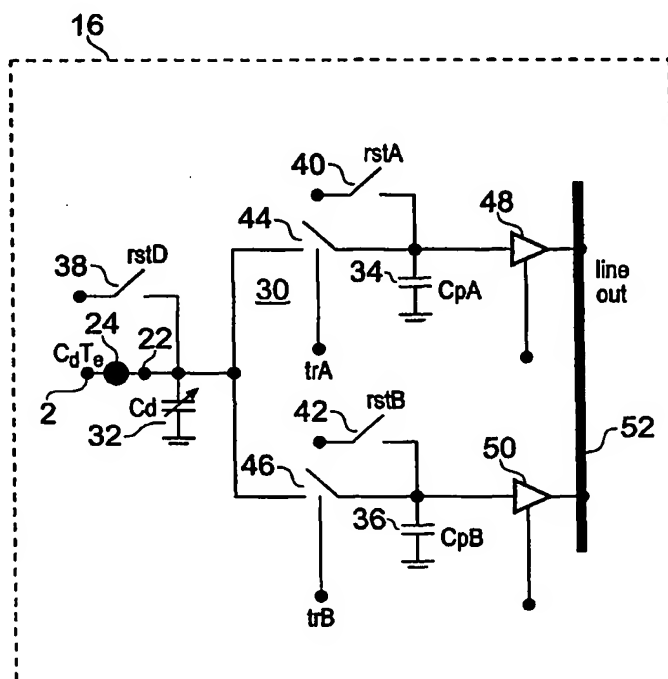
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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,

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(54) Title: **IONISING RADIATION DETECTOR**



(57) Abstract: An assembly (13) for monitoring ionising radiation comprises a detector substrate (2) for generating electronic charge responsive to incident ionising radiation, the detector substrate (2) having an array of ionising radiation sense volumes (12) formed in it. A circuit substrate (14) supporting an array of read-out circuits (16) corresponding to the array of sense volumes is mechanically and electrically coupled to the detector substrate (14). Each of the read-out circuits (16) is switchable between first and second charge integration modes for receiving sense charge from a corresponding sense volume. A charge integration circuit (30) is configured in the first charge integration mode to integrate charge corresponding to sensing of a single ionising radiation detection event in a corresponding sense volume and in the second charge integrating mode to integrate charge corresponding to sensing a plurality of ionising radiation detection events in the corresponding sense volume. In another embodiment the read-out circuitry includes photon-counting circuitry (140).

SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NI, SN, TD, TG).

Published:

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